

## ***Melaleuca uxorum* (Myrtaceae), a new species from north-eastern Australia**

L.A. Craven<sup>1,4</sup>, G.Holmes<sup>2</sup> and G.Sankowsky<sup>3</sup>

<sup>1</sup> Australian National Herbarium, CPBR, CSIRO Plant Industry, GPO Box 1600, Canberra, ACT, 2601

<sup>2</sup> Glenn Holmes and Associates, 33 Twelfth Avenue, Atherton, Qld, 4883

<sup>3</sup> PO Box 210, Tolga, Qld, 4882

<sup>4</sup>author for correspondence

### *Abstract*

*Melaleuca uxorum* Craven, G.Holmes & Sankowsky, a new species in the *M. minutifolia* group, is described from the Herberton Range in north-eastern Australia.

### **Introduction**

Numerous visits by botanists have been made to the northern Herberton Range in tropical Queensland, near the towns of Atherton and Tolga, to explore its woodland vegetation. Despite this attention, populations of a distinctive but undescribed species of *Melaleuca* L. were discovered there recently near Mt Emerald, one of the major peaks in this range. It was collected initially by the second author and J. Holmes in July 2000, and quite independently by the third author in December 2000. Upon investigation, the plant was found to belong to the *Melaleuca minutifolia* F.Muell group of species. It possesses decussate, peltate leaves as do the species of this group but differs *inter alia* in that the floral unit is a triad.

Until now, the *M. minutifolia* group consisted of two species, *M. minutifolia* and *M. monantha* (Barlow) Craven. The former occurs from the Drysdale River district eastwards to south-western Arnhem Land in north-western Australia and the latter from the Palmer River district southwards to Mt Sturgeon in north-eastern Australia. These two species are characterised by the following features: in *M. minutifolia* each floral unit consists of a dyad subtended by a bract, each flower is subtended by three “bracteoles” and the leaf blade apex usually is long acuminate to narrowly acute; in *M. monantha* each floral unit consists of a monad subtended by a bract, each flower is subtended by two bracteoles, and the leaf blade apex usually is shortly to moderately acuminate (Craven & Lepschi 1999).

Further study of the Herberton Range plant has shown that it represents a distinctive new species of the *M. minutifolia* group and it is formally described here.

### **Taxonomy**

***Melaleuca uxorum*** Craven, G.Holmes & Sankowsky, sp. nov.

A *M. minutifolia* F.Muell. et *M. monantha* (Barlow) Craven floribus triadibus, ramulis puberulis minute, foliis latioribus (1.3–2.5 mm) et 11–17-nerviis, et ovulis in quoque loculo numerosioribus (c. 33–37) differt.

*Type*: Australia: Queensland: Cook District: Herberton Range, 1.2 km NW of Mt Emerald, 4 Dec. 2001, Craven and Holmes 10422 (holotype BRI; isotypes A, CANB, DNA, L, MEL, NSW, P).

*Shrub* to 1 m tall (usually 0.5–0.6 m tall). *Bud scales* absent (but prophylls present on lateral shoots). *Branchlets* glabrescent or subglabrous, minutely puberulous, terete,

subcompressed or irregularly angled, very slightly excavated. *Leaves* decussate, imbricate, amplexicaul, peltate, ascending or spreading-ascending, 2–4.5 mm long, 1.3–2.7 mm wide, 1.3–2.3 times as long as wide, sessile; *leaf blade* glabrescent, the abaxial surface glabrous, the margin with stoutish cilia, dull, broadly elliptic, broadly ovate or subcircular, in transverse section lunate, strongly lunate or broadly v-shaped, in lateral view recurved (rarely straight), the base rounded or truncate, the apex acuminate, narrowly acute or obtusely shortly acuminate, with 11–17 longitudinal veins, the oil glands not visible on either surface, sparse. *Inflorescence* a head or short spike of triads, inserted interstitially on the reproductive seasonal growth unit the apex of which continues growth after anthesis, 18–25 mm wide, with 4–12 clustered triads each of which is subtended by a foliage leaf or bract, the subtending bract usually absent at anthesis; *central flower* of each triad ebracteolate, each lateral flower subtended by three “bracteoles” (one narrowly ovate and 1.2–1.7 mm long, the other two narrowly elliptic to linear-elliptic and 1–1.5 mm long). *Hypanthium* glabrous, pinkish-white, not stipitate, cup-shaped, 1.2–2.6 mm long, 1.5–2 mm wide. *Calyx lobes* 5, green, free, overlapping, abaxially glabrous (margin is minutely ciliate), costate or not (distinctly costate when dried), 0.8–1.2 mm long, herbaceous almost to the margin or herbaceous in the proximal-central zone and scarious in a narrow marginal band, the band 0.1–0.2 mm wide, the margin ciliate, broadly ovate, very broadly triangular or broadly elliptic, persistent at least until the immature fruit stage. *Petals* 5, deciduous, glabrous, white flushed pink, not or obscurely clawed, broadly elliptic or subcircular, 1.8–2.2 mm long, the margin ciliate. *Stamens* in 5 bundles, a staminal ring absent, 6–12 per bundle; *filaments* glabrous, pure white, 7.5–11 mm long, the bundle claw 3.7–6 mm long, 0.5–0.6 times as long as the filaments; *anthers* generally uniform in size, broadly obovate or subcircular, 0.3–0.4 mm long, connective not prominently glandular. *Ovary wall* adnate to the hypanthium for the proximal one-quarter only; placentation axile-median; *ovules* c. 33–37 per locule. *Style* glabrous, straight (or more or less so) or hooked, 8–10.25 mm long, the stigma punctiform. *Infructescence* usually as long as wide or longer than wide or sometimes shorter than wide, 7–12 mm in diameter. *Fruiting hypanthium* thick-walled, corky, cup-shaped, 2.5–3.5 mm long, 3–3.5 mm wide, 0.7–0.9 times as long as wide, 1.5–3 mm wide at the orifice; calyx lobes replaced by sepaline teeth or weathering away and not replaced by sepaline teeth; valves inserted. *Seeds* angular-obovoid, 0.6–0.7 mm long, the testa membranous; *embryo* with the cotyledons about one third its length, the cotyledons obvolvate.

*Etymology*: The epithet is derived from the Latin word, *uxor*, wife, spouse, consort, and has been chosen to honour our wives. Kirsty, Jenny and Nada have shared our enthusiasm for plants over the decades. On numerous occasions they have experienced with us both the successes and failures that accompany our bush quests.

*Phenology*: Flowering period: November to February. Fruits present in all months.

*Other specimens examined*: **AUSTRALIA: QUEENSLAND**: 1.2 km NW of Mt Emerald, 16 July 2000, *Holmes & Holmes s.n.* (BRI), *ibid.* 26 Mar. 2001, *Holmes & Holmes s.n.* (BRI); near Mt Emerald, 7 km NW of Tolga, 24 Dec. 2000, *Sankowsky 1702* (BRI, CANB), *ibid.* 4 Feb. 2001, *Sankowsky 1703* (BRI, CANB).

*Distribution and ecology*: *Melaleuca uxorum* has been recorded only from the northern Herberton Range in north-eastern Queensland. The species is known from four sites distributed in an arc, with a linear distance of three kilometres. These sites vary in altitude between 950 and 1050 metres. Soil parent material is acid volcanic, putatively rhyolite. The mainly skeletal soils of the area support a low open woodland dominated by *Eucalyptus lockyeri* Blaxell & K.D.Hill. *Melaleuca uxorum* tends to form low continuous shrubberies on rock pavements where rainfall runoff is concentrated and fire is infrequent. Regular associates include *Acacia aulacocarpa* A.Cunn. ex Benth., *A. calyculata* A.Cunn. ex Benth., *Xanthorrhoea johnsonii* A.T.Lee, *Pseodanthus pimeleoides* Sieber ex

Spreng. and *Borya septentrionalis* F.Muell. Occasional associates also endemic to the district include *Homoranthus porteri* (C.T.White) Craven & S.R.Jones and *Grevillea glossadenia* McGill.

*Notes:* The species is related closely to *M. minutifolia* and *M. monantha* but differs from them in having three-flowered floral units (two- and one-flowered respectively in *M. minutifolia* and *M. monantha*); glabrescent, minutely puberulous branchlets (glabrous in *M. minutifolia* and *M. monantha*); broader leaves (1.3–2.7 mm wide as against 0.6–1.1 mm and 0.5–1 mm); more veins in the leaf blade (11–17 as against 5–7 in each of the other species); and more ovules per locule (c. 33–37 as against c. 20–30 and c. 20).

In the identification keys in Craven and Lepschi (1999), *M. uxorum* keys out in Key 1 to a group of south-western Australian species that have flowers in triads, and keys out nearest to *M. cucullata* Turcz. with which it has no close relationship. It may be inserted into Key 1 in Craven and Lepschi (1999) by replacing the first lead of couplet 8 with the following:

8. Leaves amplexicaul

8. Leaf blade in transverse section depressed angular-obovate, strongly depressed obtriangular, depressed obovate or shallowly lunate; stamens 3.2–5.5 mm long; ovules 8–10 per locule .....*M. cucullata*

8A: Leaf blade in transverse section lunate, strongly lunate or broadly v-shaped; stamens 7.5–11 mm long; ovules c. 33–37 per locule.....*M. uxorum*

Within each triad, the central flower is ebracteolate and each lateral flower is subtended by three “bracteoles”. The standard condition in Myrtaceae is for a flower to be subtended by a pair of bracteoles. The “bracteoles” in *M. uxorum* are dissimilar. One is narrowly ovate and 1.2–1.7 mm long, while the other two are narrowly elliptic to linear-elliptic and 1–1.5 mm long. It seems that the floral unit in this plant may be derived from the reduction of an axis bearing several floral units composed of a single bracteate and bracteolate flower to a three-flowered unit with the two lateral flowers maintaining the possession of bract and bracteoles while the central and possibly terminal flower has lost all subtending organs.

*Conservation status:* By IUCN criteria B and C (IUCN 2001), *Melaleuca uxorum* is Endangered (EN B2ab(iii); C2a). A total population of fewer than 400 plants has been recorded from four sites. These occur within a linear distance of three kilometres and occupy less than one hectare. Recurrent fire is the main threat to survival. Because of the restricted number of known plants, their locations will not be precisely disclosed here.

## References

- Craven, L.A. and Lepschi, B.J. (1999). Enumeration of the species and infraspecific taxa of *Melaleuca* (Myrtaceae) occurring in Australia and Tasmania. *Australian Systematic Botany* **12**, 819–927.  
 IUCN (2001). IUCN Red List Categories and Criteria: Version 3.1. (IUCN: Gland & Cambridge.)  
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